

NEWSLINE

Published weekly for employees of Lawrence Livermore National Laboratory

Friday, December 9, 2005

Vol. 30, No. 47

EDI to assist search for planets



DON BARTLETT

Comet Hyakutake shoots past the Mt. Palomar dome earlier this year.

By Anne M. Stark

NEWSLINE STAFF WRITER

David Erskine might just be on his way to finding the Holy Grail; of Earth-like planets, that is.

With the help of the externally dispersed interferometer (EDI) that he developed more than seven years ago, Erskine and colleagues from UC

Berkeley and Cornell University will use the instrument on the Mount Palomar 200-inch telescope to hunt for Earth-size planets in the infrared.

This would be the first precision Doppler planet search in the infrared, which is optimized to measure low mass stars that tend to be cool.

See PLANETS, page 3

Unprecedented campaign that began with storm relief comes HOME for 2005

The 2005 HOME Campaign comes to a close today.

Employees who have not yet made a pledge may go to the HOME Website <http://home.llnl.gov/donation/> and scan the more than 400 organizations represented. Join Lab employees who have already pledged to help those in the community who are in need.

The campaign faced unprecedented challenges this year. In the aftermath of Hurricane Katrina, employees were eager to help hurricane victims. Several methods of one-time donations were set up and Lab employees contributed more than \$70,000 to the hurricane relief. At this time, the campaign continues to move toward its goal of \$1.6 million.

Employees who return their pledge forms may still win a prize. Winners will be randomly selected from among those returning their forms during this final week and from those pledge forms received earlier but which have not won a prize.

**More on HOME
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Pledges made by today will be eligible for the last prize drawing on Friday, Dec. 16. Electronic donations are automatically entered; there is no need to return a pledge packet. Prizes include gift certificates to restaurants, retail stores and sporting events.

(For a look back at the 2005 HOME Campaign, see the column by Chairperson Patti Lann, on Page 5.)

HSD gives Lab flu prevention measures a shot in the arm

By Charles Osolin

NEWSLINE STAFF WRITER

The Laboratory's Health Services Department (HSD) now has about 600 doses of flu vaccine and will offer free vaccinations to Lab employees from 8 to 11:30 a.m. next Thursday, Dec. 15, in Bldg. 663. Due to the shortage of flu vaccine, HSD is unlikely to receive additional vaccine this season.

All LLNL employees are eligible for the vaccinations, which will be administered until the supply is exhausted. The Lab's previous, limited supply was restricted to "high-risk" individuals — those with chronic illness (heart disease, diabetes, kidney disease, asthma, cancer, HIV/AIDS), those over 65, and pregnant women past the first trimester.

See FLU, page 7

New year and new look for *Newsline*, *NewsOnLine*

In an effort to enhance Laboratory communications and operate more efficiently, changes are coming to *Newsline* and *NewsOnLine* in 2006.

Sporting a new look for the new year, *Newsline* will appear every other week starting in January with the annual year-in-review edition to be published Friday, Jan. 6. A new tabloid style format will enhance graphics and readability.

NewsOnLine will appear more frequently, also in an enhanced format to improve readability and reduce scrolling. *NewsOnLine*, currently published twice a

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**Joe Wong's
voyages of
discovery**

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**Looking back
at HOME
2005**

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**Year of Physics:
Einstein as time
goes by**

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LAB COMMUNITY NEWS

Weekly Calendar

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Friday
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Today is the last day to make donations to the **HOME Campaign** and help meet the goal of more than \$1.6 million.

As of this week, employees have donated more than \$1.4 million. If you haven't donated yet, there's still time to help those in the community who are in need. (For more details about the HOME Campaign, see page 1.)

Monday
12

Amigos Unidos members are selling chicken and pork **tamales** as a fundraiser for their annual scholarships to local high school students. Pre-sale orders only; deadline to order is today. Costs are \$15/dozen; \$8/half-dozen. Order your fresh tamales from one of the following Amigos Unidos members:

Irene Akers 2-6350/Trailer 5453, room 2146
Marian Barraza 3-7063 / Bldg. 671, room 1322
Rey Bocanegra 3-5309 / Bldg. 214, room, 1001
Gloria Davalos 3-1410 / Bldg. 543, room 2009
Juan Hernandez 2-0347 / Bldg. 217, room 184B
Marta Holm 2-8870/Bldg. 131, room 1612
Andres Martinez 3-9752 / Bldg. 551E, room 213
Jessica Noriega 2-6750 / Bldg. 551E, room 158
Sabrena Ramirez 4-3723 / Bldg. 131, room 1614
Vera Sanchez 2-3355/Bldg. 131, room 2504

All tamale pick ups will take place on Thursday, Dec. 15, from 11:30 a.m.-1 p.m. at the old Central Cafeteria (Trailer 4675, room 1020). No tamales will be sold on this day. There will be no refunds or deliveries.

...

There are still a few families left who need sponsors for **Brighter Holidays**. Contact Sherry Pratt, 3-8549 if you are interested. Delivery of gifts and food by Lab groups is Friday, Dec. 16 at 8 a.m.-noon. Items should be taken to Trailer 6575, near the Discovery Center. Remember to secure the family number and name on all packages. For questions, call Karen Rosenberg, 2-8551, or Kelly Turner, 3-9944.

Epic ride re-cycled



JACQUELINE MCBRIDE/NEWSLINE

From left: Janis Turner, a retired Livermore teacher, Celeste Matarazzo of Computation and Rose O'Brien of Defense and Nuclear Technologies (DNT), recount their 60-day adventure riding 3,815 miles across the country from San Francisco to Virginia Beach, Virginia during a presentation Wednesday. The trio used the ride to raise more than \$8,000 for the Tri-Valley's Hope Hospice. The presentation was co-sponsored by the Lab's Women's Association, and the Computation and DNT directorates.

IN MEMORIAM

Catherine Loren Comen

Catherine Loren Comen, an employee in the Environmental Protection Department, died at her Brentwood home on Dec. 5. She was 47.

Comen was born in Pittsburgh and had lived in Contra Costa County since 1987. Comen worked in EPD for more than 10 years in various administrative positions, the past four years in resource management. While working full time and excelling in her position in EPD, she attended night classes and received her bachelor of arts degree in management at St. Mary's College in 2002.

Comen enjoyed spending time with her dog Casey, reading, dining, gardening and football. She will be best remembered for her helpful attitude and cheerful disposition, and she will be greatly missed by all her friends and colleagues in EPD and at the Lab.

EPD will be collecting from those who wish to make a donation in Comen's name to one of her favorite charities, "EarthShare." Contact Karen Pangelina at 2-8645 for more information.

Survivors include her brother and sister in law, Casey and Karen Comen of Phoenix; cousins Kelly and Tommy, and several aunts, uncles and other cousins.

Private inurnment will be held in Arizona. A memorial service will be held on Sunday, Dec. 11, at Grazie Restaurant, 642 First St., Brentwood, 634-9223, from 11 a.m.-3 p.m.

Alfred George Moniz

Alfred Moniz, a Laboratory retiree, died Nov. 24. He was 89.

Moniz, an Oakland native, lived in Tracy for 40 years. He was a resident of the San Joaquin River Club. He enjoyed traveling by trailer with

his wife and making artwork from wood.

He is survived by his wife of 68 years, Pearl Moniz. A memorial service will be held at noon Dec. 10 at Lakeside Chapel, San Joaquin River Club, 30000 Kasson Road, Tracy.

Newsline

Newsline is published weekly by the Public Affairs Office, Lawrence Livermore National Laboratory (LLNL), for Laboratory employees and retirees.

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LAB TV broadcasts

For information
about Lab TV
broadcasting and
video production,
contact LLTN,
3-3846.



MONDAY—FRIDAY, DEC. 12-16

Re-broadcast of Director Michael Anastasio's State of the Lab presentation.

Monday through Friday
Lab TV Channels 4 and 7

Appearing at 10 a.m., noon, 2, 4 and 8 p.m. and 4 a.m. Friday.

Joe Wong looks back on eventful life and career

By Anne M. Stark

NEWSLINE STAFF WRITER

When Joe Wong looks back on his life, he's convinced his children don't know much about the first 27 years of his life.

That was life before he was married, had three children, two grandchildren and long before he started working in the Chemistry and Materials Science Directorate at the Laboratory.

"I'm going to write an autobiography about the first 27 years of my life," said Wong, who has worked for nearly 20 years as a senior chemist and once group leader for CMS. "Besides being born in Hong Kong and going to school in Australia, my kids only know me after the first 27 years."

Born in Hong Kong, Wong traveled a round-about way to get to Livermore in 1986. At 17, he left Hong Kong to attend high school in Australia. He spent the next seven years or so there, earning two bachelors degrees in physical chemistry and pure and applied chemistry from the University of Tasmania.

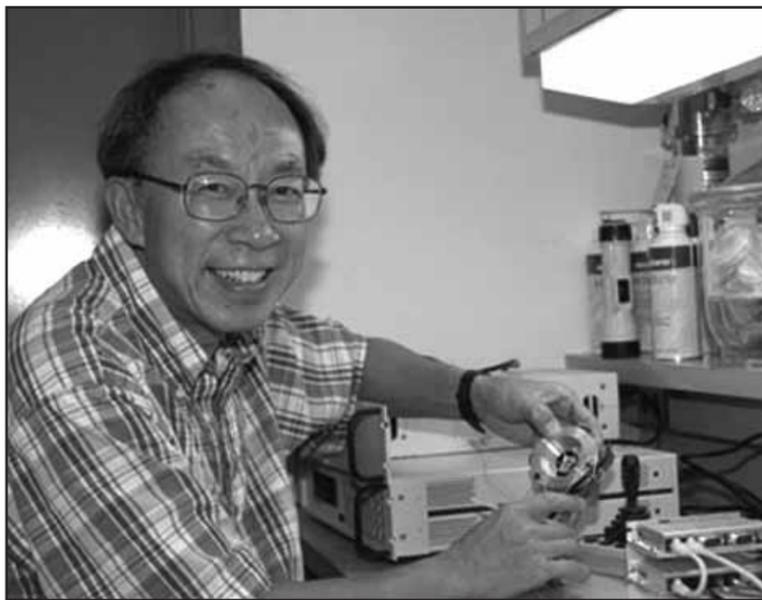
His path to Tasmania was serendipitous. While attending high school in Queensland, he went on a summer trip to Tasmania to pick strawberries. He discovered there was a University of Tasmania that just hired a new chair in high temperature molten salt chemistry, a field which had already peaked Wong's interest.

He went on to work at Electrolytic Zinc of Australia for a year and worked nights as a lecturer in physical chemistry at Royal Hobart College, both in Tasmania. However, he wanted to travel the world even more. He came to the United States and attended Purdue University to earn his Ph.D. in physical chemistry. While at Purdue, he was recruited by GE Research and Development Center to serve as a staff research chemist in its solid state physics laboratory.

By this time, Wong had married and started a family. He also decided to take on the ambitious goal of writing a book with his thesis advisor, Professor C. Austen Angell. The book: "Glass Structure by Spectroscopy" turned out to be his most cited work. "This was outside of work, we'd work after hours," Wong reminisced. "I remember writing at night with my son on my lap."

But one-third of the way through his career, Wong decided to change his specialty; he was fascinated by the world of synchrotron radiation. He collaborated with Farrel Lytle and Dale Sayers, two of the pioneers of modern X-ray absorption spectroscopy, and helped to build the first X-ray beam line at Brookhaven National Laboratory. At the same time, Livermore was working with Stanford to construct three beam lines for Lab programs.

"These beam lines got me here," Wong said. Once he accepted the Lab's job offer, he and his wife had one weekend to choose a city with good schools for their three children, find a home and put a deposit down on a house.



Joe Wong shows the sample holder used in his plutonium experiments.

Upcoming CMS presentations

Joe Wong of the Chemistry and Materials Science Directorate presents:

- "Multi-Disciplinary Approach to a Material Problem: The 3 ω Crater in Fused Silica," at 9 a.m. on Tuesday, Dec. 13, in Bldg. 235, Gold Room.
- "Catching Phonons in Plutonium: My Story," at 9 a.m. on Wednesday, Dec. 21, in Bldg. 235, Gold Room.
- Previous presentation: "The ABC of X-Ray Absorption Fine Structures (XAFS) Spectroscopy: A Tribute to Dale Sayers - A Modern EXAFS Pioneer."

They settled in Danville.

Wong's Livermore career has been very successful. He not only has extensive research and development experience in a range of industrial and basic materials science areas ranging from synthetic diamonds to trace metals in fossil fuels, energy and electronic materials, combustion synthesis, high temperature metallurgy, actinide materials and high-power laser materials, but his work in synchrotron radiation has earned him much prestige from collaborators and colleagues, domestic and abroad.

"In addition to being a first-rate scientist, he is also very gentlemanly and gracious," said Karl Van Bibber of the Laboratory Science and Technology Office who knows Wong through his various Laboratory Directed Research and Development projects from soft X-ray monochromator development to catching phonons in plutonium. "He did so much exciting science in recent years."

Palomar, Erskine said the team can expect to measure cool stars such as brown dwarfs with a velocity sensitivity 10 times better than with the spectrograph alone.

"There are all these red (new) stars that are not being looked at to see if there are planets around them because they are too feeble in the visible light," he said. "To date, no one has had an infrared instrument this sensitive and precise. We're like the new kids on the block."

The idea behind EDI started out as a 1998 Laboratory Directed Research and Development pilot project put together by Erskine of the Physics and Advanced Technologies Directorate using white light velocity interferometer techniques from H-Division's two-stage gas guns and combining it with astronomical spectroscopy.

In September 2005, the LLNL/UCB/Cornell team received a \$1 million grant over three years from the National Science Foundation to conduct experiments at Mt. Palomar. This also would be the largest telescope application of the Doppler interferometer technique invented and developed at LLNL. Cornell is building the spectrograph and UC Berkeley / LLNL the interferometer.

In 2003, Wong's team made a landmark event in the history of the experimental investigation of plutonium by mapping the full phonon dispersions of plutonium using an innovative microbeam-on-single-grain technique, ending the quest of this fundamental data for the past four decades or so. The breakthrough revealed much about the physics and materials properties of plutonium and its alloys.

"He took a very different tactic and solved the problem with this beautiful result that wound up in *Science*," said Jim Tobin, one of Wong's colleagues in the Materials Science and Technology Division. "The way he did this was absolutely brilliant. This is a triumph of a skilled veteran scientist pulling every trick to make something work with plutonium to solve this problem that has been around since (Ernest) Lawrence."

Tobin said Wong's discovery has now become one of the cornerstones of understanding plutonium.

"Joe basically hit a grand slam home run and it's wonderful," Tobin said. "He really deserves an enormous amount of credit."

Wong has come a long way from his studies in Tasmania. And by the time his stint at Livermore is over (he retires Jan. 4), he will have published more than 200 papers, earned seven patents, and garnered more than 12 awards — from two R&D 100 Awards to the Alexander von Humboldt Research Award for Senior U.S. Scientists to his earliest award in 1966 for the best results in chemistry honors from the Electrolytic Zinc Company of Australia.

Most recently, Wong was awarded a 2005 fellow of the American Physical Society. When the letter announcing his fellowship arrived at the Lab, Wong almost threw it away.

"I thought it was a membership renewal form so I was just going to throw it away," he said. "But I noticed the postage was a little more than the standard letter." Indeed, he was right. The letter was citing him as a 2005 fellow "for innovative and significant contributions to experimental materials physics, particularly for contributions to XAFS (X-ray Absorption of Fine Structure) and XANES (X-ray Absorption Near Edge Structure), and for the first measurements of phonon dispersion in plutonium."

"Being a chemist, I am very honored to be bestowed a fellowship in a physics society," he said.

Wong is leading a series of special CMS seminars in the next couple of weeks to pass on some of his knowledge to younger colleagues. (See accompanying box at left.)

"I always tell the youngsters, if you want to make an impact, it's not the quantity, it's the quality," he said. "Think of doing things that will stand up with time."

As for life after retirement, Wong plans to enjoy life, smell the roses in his own garden and elsewhere around the globe, fulfill a scroll of items on his and his wife's dream list, but above all, devote as much time as possible to the grandchildren whose photos are plastered all over his office.

PLANETS

Continued from page 1

The motion of a planet around a star causes the star to wobble, which in turn causes a changing Doppler shift in the wavelength of the star light. Light passing through the periodic fringes of an interferometer (and then into a spectrograph) creates a moire pattern. The moire pattern shifts proportional to the Doppler velocity. Conventional spectrograph distortions can prevent their precise measurement of the Doppler shift, but by using the EDI, the small Doppler shifts of low mass stars can be measured.

And that's where the Holy Grail comes in. For years, astronomers have identified new planets, but typically they are giant planets, close to the size of Jupiter or Saturn.

"The holy grail is to find an Earth-like planet," Erskine said. "Using EDI, we have a fighting chance to find one."

An Earth-like planet could help astronomers understand how Earth formed and how planets form in a habitable zone where water is not boiling or freezing.

Using EDI in conjunction with a spectrograph at Mt.

"Stars less massive have cool atmospheres that are faint in visible light," said James Lloyd, a collaborator from Cornell. "Low mass stars and brown dwarfs are therefore largely unexplored for planets by the visible radial velocity methods that have been used so far. To explore the population of planets around the lowest mass stars and brown dwarfs, we are combining EDI with a spectrograph on the Palomar 200-inch telescope."

In addition, the group recently received \$500,000 to conduct a design study for a Doppler planet search instrument based on Erskine's EDI at the Gemini Observatory.

Other outside collaborators on the project include Jerry Edelman of the Space Sciences Lab at UC Berkeley and Terry Herter of Cornell University.

In September, the Keck Foundation awarded funding to the University of Florida to use a modified LLNL interferometer technique to study hundreds of stars simultaneously at the Sloan 2.5 m telescope. The Florida group is led by Jian Ge, who learned the technique while a post-doc at the Laboratory for the 1998 LDRD project. LLNL will license the technology. A known exoplanet was measured using EDI by this group at the Kitt Peak Observatory in Arizona.



NEWS YOU CAN USE



FRANK NUNEZ/TID

R&D 100 winners

Director Michael Anastasio congratulates R&D 100 winner Linnea Cook of the VisIt team on Monday during a ceremony honoring winners. Anastasio presented R&D 100 awards to the Laboratory scientists and engineers who captured four awards this year, bringing the Lab's total to 106 R&D 100 awards since 1978. Anastasio offered his congratulations and thanks to the researchers for their efforts and success, adding: "This is always an enjoyable time to see some of the great work the Laboratory does." Awards were won for the Adaptable Radiation Area Monitor, a radiation detector; the Biological Aerosol Mass Spectrometry (BAMS) biological pathogen detector; VisIt, a visualization tool geared toward the parallel processing of large amounts of data; and for NanoFoil, a heat source that enables lead-free soldering and brazing of materials at room temperature.

NEWSLINE

Continued from page 1

week (Monday and Wednesday), will increase to Mondays, Wednesdays and Fridays, eventually moving toward a daily publication. Calendar items appearing in *NewsOnLine* will be updated daily. New features and format enhancements will be added over time.

Following a national trend, the Laboratory is relying increasingly on Web-based communications. Changes to *NewsOnLine* will allow for more timely communication on topics of interest to employees and make information easier to find.

As a bi-monthly publication, *Newsline* will emphasize news features about Lab research that is of broad interest as well as employee profiles. The Technical Meeting Calendar will appear as a daily listing in *NewsOnLine*, but will no longer be pub-

lished in *Newsline*.

Due to upgrades to the Lab's information systems, the classified ads will be revamped and administered using a new more cost-effective system. There may be a brief transition period during which classified ads would not appear in *Newsline*. Ad categories will be simplified and restrictions put in place to ensure equal access for all employees and retirees. Look for additional information in early January.

Technical Meeting Calendar

Friday
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INSTITUTE FOR GEOPHYSICS AND PLANETARY PHYSICS

"Astrochemistry and Star Formation: Successes & Challenges," by Eric Herbst,

Ohio State University. Noon, Bldg. 219, room 163. Property protection area. Foreign national temporary escorted building access procedures apply. Contact: Wil van Breugel, 2-7195, or Lisa Lopez, 3-0250.

ENERGETIC MATERIALS CENTER

"Estane Domain Structure and Composition by Neutron and Resonant Soft X-ray Scattering," by Rex Hjelm, Los Alamos Neutron Science Center, LANL. 10:30 a.m., Bldg. 191, LX conference room. Unclassified talk, but limited area. Contact: Sue Stacy, 4-2607, or Kurt Glaesemann, 3-1579.

Monday
12

PHYSICS AND ADVANCED TECHNOLOGIES/ MEDICAL PHYSICS AND BIOPHYSICS DIVISION

"In Vivo 1- and 2- Photon

Fluorescence Microendoscopy Applied to Imaging of Neurons in Deep Brain Tissue to Understand the Dynamics Underlying Learning, Memory and Forgetting," by Mark Schnitzer, Stanford University. 11 a.m. -

noon, Bldg. 151, room 1209, Stevenson Room. Contact: Steve Lane, 2-5335, or Rose Gardner, 2-2317.

Tuesday
13

2005 PHYSICS AND ADVANCED TECHNOLOGIES (PAT) POSTDOC SYMPOSIUM

9:15 a.m., Bldg. 123, auditorium. Postdoc talks from 9:15-noon, followed by lunchtime poster session. Common use facility. Foreign nationals may attend. Contact: Andrew Williamson, 2-8285, or Julie Burnsides, 3-1277.

CHEMISTRY AND MATERIALS SCIENCE/ MATERIAL SCIENCE & TECHNOLOGY DIVISION

"Multi-disciplinary Approach to a Material Problem: The 3ω Crater in Fused Silica," by Joe Wong. 9 a.m., Bldg. 235, room 1090. Common use facility. Foreign nationals may attend. Contact: Paula Peterson, 4-4844.

Wednesday
14

CHEMISTRY AND MATERIALS SCIENCE

"Molecular Mechanism of Biological Control of Crystallization and its

Implication to Effective Therapies for Kidney Stone Diseases," by Roger Qiu, Chemical Biology & Nuclear Science Division. 2 p.m., Bldg. 151, room 1209. Property protection area. Foreign national temporary escorted

building access procedures apply. Contact: Ted Tarasow, 3-7241, Kathy Ricard, 3-8024.

Thursday
15

NEW TECHNOLOGIES ENGINEERING DIVISION

"Some Recent Contributions in Lagrangian Computational Mechanics," by Mark Rashid,

Department of Civil Engineering, UC Davis. 10 a.m., Bldg. 235, room 1090. Property protection area. Foreign national temporary escorted building access procedures apply. Contact: Lara Leininger, 2-6932.

Friday
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PHYSICS AND ADVANCED TECHNOLOGIES/INSTITUTE FOR GEOPHYSICS AND PLANETARY PHYSICS

"A New Look at Dark Matter

in the Universe," by Manoj Kaplinghat, University of California, Irvine. Noon, Bldg. 319, room 205. Property protection area. Foreign national temporary escorted building access procedures apply. Contact: Wil van Breugel, 2-7195, or Lisa Lopez, 3-0250.

The deadline for the next Technical Meeting Calendar is noon Wednesday.

Please submit your meetings through the Technical Meeting Calendar form on the Web, located at

<http://www.llnl.gov/tmc/index.html>

AROUND THE LAB



HOME is where campaign chair Patti Lann has been

As the 2005 HOME Campaign comes to a close today, this is a good time to look back and take stock what we have accomplished together over the past several months.

It has been an honor for me to represent Defense and Nuclear Technologies and serve as the HOME Campaign chairperson. In my role, I have had the opportunity to meet and work with so many of you who helped to make this year's campaign a success. I also have been fortunate enough to meet people who represent the more than 400 agencies listed in the campaign. Connecting with a variety of people behind the scenes has been one of the greatest rewards



By Patti Lann
HOME chairperson



JACQUELINE MCBRIDE/NEWSLINE

“Lab employees gave in many ways. . . All of this has added up to a memorable and rewarding HOME Campaign. We have made a difference.”

— Patti Lann

of leading the campaign.

Working with the Administration and Human Resources and Biosciences directorates, which organized the annual “Run for HOME,” was a pleasure. The kick-off provided an enjoyable event for all. Runners, walkers and skaters, those who donned costumes, those who helped set up and manage the run, as well as those who visited the agency fair demonstrated a gen-

erosity of spirit and teamwork that is a hallmark of this Laboratory.

We faced an unprecedented challenge at the onset of the campaign this year. With the aftermath of Hurricane Katrina in early

October, Laboratory employees were eager to help hurricane victims. We conducted a successful three-day drive for hurricane victims during which employees could give one-time-only donations via personal checks to agencies at the cafeterias. We also opened the online donation process for a one-week period of time to receive donations to the Salvation Army, American Red Cross and SPCA. Thanks to these efforts, we collected more than \$70,000 in donations.

New this year was “At HOME in our Community,” events that provided an opportunity for all employees to have an up-close look at five different agencies.

Volunteers not only met with agency representatives, but also worked side-by-side with them in the community on a number of meaningful projects. They helped to build homes for Habitat for Humanity; purchased school supplies and back-packs for local needy children through Tri-Valley Jubilee; organized bingo night at the Livermore Veterans Administration Hospital; walked dogs with Tracy’s “People for Pets” organization and donated food to the Tracy animal shelter; and in the spirit of holiday season, collected more than 2,000 pounds of non-perishable foods for the needy for Tracy Interfaith Ministries.

I want to thank the very dedicated committee members who worked hard to make all of these events happen. I also want to thank those generous Lab employees who gave in many ways, including the donation of their time, effort and pledges. All of this has added up to a memorable and rewarding 2005 HOME Campaign at the Laboratory. We have made a difference.

Last chance to donate to the HOME Campaign!

HOME directorate participation statistics including hurricane relief donations

Directorate	Total employees	No. of contributions	\$ amount donated	Percent participation
Energy & Environment	245	91	40,230	37
Administration & Human Resources	327	156	60,302	48
Safeguards & Security	376	68	26,715	18
Laboratory Services	1,166	265	84,734	23
National Ignition Facility (NIF) Programs	177	88	44,782	50
Chief Financial Officer	108	54	19,726	50
Defense & Nuclear Technologies	378	179	98,602	47
Safety & Environmental Protection	744	303	131,417	41
Computation	1,029	317	183,549	31
Nonproliferation, Arms Control & International Security	243	113	59,475	47
Director's office	161	107	81,779	66
Biology & Biotechnology Research	223	64	26,903	29
Physics & Advanced Technologies	344	177	88,935	51
Engineering	1,977	598	345,416	30
Chemistry & Materials Science	487	165	109,498	34
S/L Vendor	0	0	0	0
Retirees	16	16	6,734	—
Others	80	80	7,735	—
Totals as of Dec. 8	8,081	2,841	\$1,416,533	35
Goal for the 2005 HOME Campaign			\$1.6 million	



CLASSIFIED ADS

See complete classified ad listings at
<https://www.ais.llnl.gov/newsline/ads/>

AUTOMOBILES

1986 - Chev. Camaro 2.8 L. Good Computer, 24MPG \$1700.00 OBO 209-833-1249

2005 - CRV Honda like new, low mileage, warranty until 3/07, \$18700 925-922-1686

1999 - Volvo S70 Sedan, Leather, Auto trans, Power Sun Roof, AM/FM/CD/Cass, 102K miles, Good Cond. \$6200 OBO. 209-588-0882

2003 - Honda Accord LX 4 cyl. 28K miles PW, PDL, PS, CC, AT, AC, CD Player, Power mirrors. Price: \$16,100 CarFax available upon request. 925-980-3490

1989 - Nissan 240SX-2dr white color 130K must test drive you will like it. \$900 obo 925-443-0218

2000 - Audi A4 Avant 2.8 Quattro, Blue, Auto, 54k miles. Great Condition \$15,000 707-494-6689

1999 - Saturn SL1. 66K mi. Manual. 4dr. CD. Alarm. Keyless entry. Color: blackberry. \$3200 OBO. 510-531-3853

1997 - El Dorado in beautiful condition. All pwr, tires like new, leather pwr seats, low miles. Garaged. Must see. Just under Blue Book 510-582-2938

2003 - Toyota Sienna LE, Leather Int., Great Cond., Non-Smoker original owners, 31,000 miles, \$18,500 or BO. 925-516-2774

2000 - Chevrolet Corvette Convertible 23750 miles 2nd owner Navy blue oak interior 6 speed z51 HUD 12disc loaded all paperwork 31500.00 209-832-2721

2001 - Mercury Cougar, C2 Coupe Limited Edition, fully loaded (leather, 6 disc cd, rally wheels, etc), V6/2.5L, Auto trans, 84k mi, excellent cond, \$9,000, 510-847-9471

1993 - 1993-Saturn SL Series. Auto, 4cyl, 4 door color(magenta red. Interior-leather, light brown, mileage 93,000. \$3000 or OBO 925-462-5058

2000 - Lexus GS400. Fully loaded, navigation system, leather, sun roof, chrome wheels, tinted windows. \$23,400.00 obo. 209-522-9630

AUTOMOBILE ACCESSORIES

Suburban Hatchbag Cargo Liner fits w/3rd seat in & 2nd seat up \$50, XLG Pet Net for Suburban or SUV \$25, Adjustable Steel Vehicle Safety Barrier \$35 925-449-5481

Yakima Hitch Bike Rack holds 2, adapter holds 2; swings down for easy access. Originally \$400; \$ 200. 925-516-7945

New Tires and Rims Michelin 205/60/R16 V-91 Rated, Honda Alloy Rims 5-lug asking 500. call Rafael at 408-439-7936

Michelin Pilot Sport Tires, P225/45/18, Set of Four, Excellent Dry and Wet Performance, Brand New, \$375 obo 925-443-3970

Cable chains. Fit smaller 13 in. sizes (call to see if they fit your car). New in tote bag (never installed). \$20/offer 925-455-0577

6 lug 16 inch rims and tires from a 1999 Suburban \$150.00 obo. 209-892-2763

BICYCLES

Yakima Hitch Bike Rack: 2 bikes with adapter for 2; swings down for easy access. Used only few times. \$ 200 925-516-7945

NEW Cannondale aluminum road frame, Red. 61cm. with carbon forks. Never assembled. After 6 or lv msg. \$80. 209-480-4963

2005 Specialized Kids Hotrock FS; \$275. 2000 Specialized Stumpjumper FSRXC full suspension; \$550. 209-830-6408

BOATS

2005 Bayliner 175 Capri with under 25 hours on it. Includes plenty of extras. Perfect all around family boat!!! \$10,500 209-471-5095

91 25ft. Sea Ray Full Canvas, sleeps 4, stove, refrig. Marine Head/W shower. Listed at 18.9K. Must sell. Make offer. 925-513-8621

Two Yamaha waverunnerIII(94)low hours; new outrides, covers, new double trailer w/ storage box; 2 new jackets; \$5,000. firm. 702-838-9497

ELECTRONIC EQUIPMENT

D-Link DWL-G122 wireless USB2.0 adapter, 802.11g, 54 Mbps, never used. Go wireless with that laptop or desktop PC. \$25. 925-454-8827

Oak Carver Amazing Platinum MkIViS. Absolute pristine condition. Includes active crossover upgrade for bi-amp operation. Asking \$1450. 925-625-0875

Mac 7500 computer w/400MHz upgrade, 20in monitor, 250MB ZIP drive, \$50/B.O. 925-443-3106

iPod shuffle in sealed box; never been used. 512MB/holds 120songs/12-hour/rechargeable battery Built-in/USB/connector/ Lanyard/earphones \$90.00 510-792-1538

TV, VCR & cabinet: RCA 19 in TV, Mitsubishi VCR and cabinet with glass door for tapes, etc. Works well. \$ 45 for all 925-516-7945

Gateway 7330gz laptop, Pentium 4, windows XP, 80GB HD, 15.4 display, DVD +/-RW Drive, includes microsoft office s/w, we purchased July 2005, \$850.00 209-495-3430

55-inch Magnavox Rear Projection TV. 3 years old. \$550 209-834-1835

Nice starter stereo equipment. Akai stereo cassette deck 50.00, Sony AM FM stereo receiver, 50.00. Excellent condition. Can bring to work. 510-537-7222

21 inch CRT monitor. Works great. Bought a LCD monitor. \$60. 925-455-4057

GIVEAWAY

FREE two unused 700c X 32 bike tires (too big for my bikes) 925-443-6617

Encyclopedia Britannica -- 1960s edition; classic reference material; outstanding condition 925-516-7945

Sofabed, comfortable queen size, upholstered dark green, brown. 925-443-3074

Toyota Tacoma Bedliner, Under-rail Style with Tailgate Protector, Fits 1995 to 2004 Short Bed, Great Cond., \$300 New 925-443-3970

Free gas barbecue grill 925-454-1969

Recliner, Lazyboy, off -white, good condition 925-828-8939

HOUSEHOLD

48" Mitsubishi HDTV \$1,200 OBO 209-835-9061

Double bed, mattress, box springs and frame. Excellent condition, firm. \$100, OBO. 925-455-1695

2005 IKEA furnitures excellent conditions, sofa-beds, tables and chairs, crib, lamps ... 20 % to 40% off, available pretty soon 925-922-1686

Oak Computer Desk, Student Size, 3 Drawer, Lower Printer Shelf, Includes Swivel Chair, Brand New Cond., \$115 obo 925-443-3970

Designer reused yellow bricks, red bricks, hundreds, nickel apiece or B.O., you haul. 925-443-3106

TV, VCR and entertainment cabinet; 19 in. RCA TV; Mitsubishi VCR, and nice cabinet with glass door; all work \$ 45 925-516-7945

Whirlpool Refrig, 19.1 cu. ft., reverseable handles, 65 inches by 32 3/4 inches, cream color. Runs great, very good condition. 80.00 OBO 510-582-2938

White Refrigerator/Freezer, Gas Range, Dishwasher. All look and run good. I am upgrading to stainless. \$200 each or \$500 for all. You P/U in Atwater. 209-356-1747

Shoprider electric wheelchair \$1,200. Call after 6pm. 415-673-9546

Moving Sale 17 December, 9 Am-3 PM. 1995 DeVaca Wy, Livermore. Stone coffee tables, Chairs, Lamps, Nic-naks, pictures, and pickup truck canopy. 925-960-9858

COMPUTER DESK: Oak, with hutch, BO 925-634-5851

Sony 32 inch Trinitron TV, barely used. All black. Pictures Available. Can deliver to LLNL. \$200.00 925-606-1286

Solid Oak Roll-Top desk in excellent condition. Selling due to remodeling. The dimensions are 60-W X 48-H X 33-D. \$425 OBO. 925-245-1414

MISCELLANEOUS

COKE MACHINE - Cavalier-CS72, 1958-59, Have a Coke lens lights up, embossed with Drink Coca-Cola, vends ANY 12 oz bottles, needs TLC. \$1500 209-969-4279

Christmas Tree with stand. Natural looking 2-piece 7 feet tall fir tree. Digital picture available. Great value for only \$39. 925-634-0868

Brand new Fox 360 riding pants, Black in color and size 28 asking \$120.00 OBO. Brand new Fox Tracker Boots, Black and size 6, asking \$95.00 OBO. 209-836-0675

Christmas Tree, artificial, 6 foot. Originally \$200, asking \$45. Includes stand, additional pine strands, and rubbermaid container for branches. 925-449-4466

Custom, handmade lanyards & jewelry: Gemstones, crystals, silver & glass to choose from. Dress up for work! 925-461-5093

Stroller, EvenFlo Travel System (Gray & Black). Includes attachable infant car seat and 2 EvenFlo car seat bases. Pictures available. \$80.00 Total 925-606-1286

Professional HandiQuilter Frame. Accommodates all size quilts to king size. Mounts to any tabletop surface. \$350 925-785-4680

MOTORCYCLES

2003 - Suzuki Z-400 Quad motorcycle, GC, has reverse, skid plates, never raced, manuals, new tires \$3,850 209-814-4064

2000 - 2000 yz125, great condition, many extra parts and accessories. orange anodized rims. \$2000 or best offer! 209-825-7702

1990 - Yamaha PW50 Red good condition kids out grown it 209-239-6526

2003 - H-D Softail FXSTI, 100th Anniv. Vivid Black, EFI, Security sys. 2,700 miles, Mint Back Surgery Sell ASAP \$14,800 OBO 303-818-7452

Dirt Bike boots, size 6, used only a few times; like new. Great for a young male or female rider. \$50 925-245-1657

2000 - Yamaha YZ250. Excellent condition. 07 Green Sticker. Many extras including Black Excel rims. Just serviced. Great for Christmas. Ask for Jared. 925-373-9128

PETS & SUPPLIES

Cats & Kittens! Males/Females. All colors and sizes! Fixed, blood tested and vaccinated. Pet Food Express Livermore, Sat (12-4) & Sunday (1-4) 925-443-6248

Bird House, handmade. Never used. Can bring to lab if interested. 6.00 510-537-7222

Red tail boas (male & female) very healthy people friendly asking \$200.00 includes 4x5ft enclosure. 925-447-6942

Two parakeets, both about 4 yrs old; one blue and white, one yellow and white. With cages and accessories. Please make offer for one or both. 925-606-6155

DOG KENNEL: 6ftx6ftx4ft chain link fence, with top, BO 925-634-5851

Adorable 9 month old Australian Shepard Retriever mix needs loving home asap. Has shots. Call to arrange meeting. 925-371-4608

Aquarium, 35 gallon fresh water. Comes with everything including a wood stand with matching hood. \$100 obo. Located in Livermore. 925-456-8484

Free for the right home, a little Holland Lop bunny. She is a beautiful and sweet rabbit. 925-373-8317

Corn Snake. 2 Yrs. old, Friendly. Includes: tank, heat lamp, water bowl, bedding supplies, thermometer, climbing branch and shelter log. \$100.00 925-373-8104

Umbrella Cockatoo, 2 years old, With large cage, Needs LOTS of attention! \$1000 (Manteca) 209-825-4265

Akita Pups - Small Show kennel has 4 pups 2Boys & 2Girls. Beautiful, originally marked. Full health guarantee. Must be spayed /neutered! 209-835-9673

Parrot Play Stand, for small to medium bird. Brand new. Paid 140.00, asking 60.00 obo 925-989-8059

Labrador Retriever Puppies - Black and Yellow, 4 Female, 3 Male. AKC, shots, declaws. \$550. 925-518-9282 or 925-895-5377

Pet cage, great for guinea pigs, gerbels, hamsters, rats, mice. \$20. 925-484-0697

Saddle, cover, stand, blanket, pad, bridle, misc. equipment. \$600 takes all. 209-839-0872

KITTENS! Male/female, spayed/neutered, FIV/FELV neg, FVRCP vaccinations. 8 weeks up to 6 months old. TVAR 925-961-0260

RECREATION EQUIPMENT

Heavy duty stationary peck deck weight machine used with free weights \$75.00 209-892-2763

Treadmill, ProForm Crosstrainer. Features drop down weight bench. Includes 2,4 and 6 lb weights. Folds for storage. Pictures Available. \$100.00 925-606-1286

RIDESHARING

Express your commute, call 2-RIDE for more information or visit <http://www-r.llnl.gov/tsmp>.

Alameda - Leave Alameda at 0625. Leave LLNL at 1600. 510-864-9474, ext. 3-1746

Ripon - 9-80 carpool - Leave Ripon at 6:15am - Leave Lab at 5pm 209-599-0922, ext. 3-9020

Modesto - 14 passenger van - captain chairs and reading lights. 8 - 4:30 work schedule. Reduce cost - pretax transit program and/or help with driving. 209-521-9047, ext. 2-5177

Solano County: Vallejo-Benicia - Solano County: Vallejo-Benicia Carpool seeks driver/rider. Schedule B 9/80s. Leave Benicia at 6am, 7am - 4:45pm work schedule. 707-246-4810, ext. 4-5589

SERVICES

Do not lose Speed, Agility, & Performance to Pain. NSCA & NATA approved! Rossiter Workout ~ It really works! Licensed CMT 510-366-9767

Need a painter? Licensed and Bonded, free estimates, Interior, Exterior, Residential and Commercial. Ask about lab discount. 209-863-1268

SHARED HOUSING

Livermore - Room for rent, \$550 /month, MALE ONLY, quiet neighborhood 10 minutes from Lab, satellite TV in furnished room, laundry, pool, no smokers, utilities negot. 925-455-6174

TRUCKS & TRAILERS

2003 - Chevy Silverado extra cab, dark gray, V8, 25k miles, air ride suspension, custom rims and stereo, bed cover, other custom items. \$29,000 925-456-5681

1964 - Ford truck F100 short bed lots of new parts tires wheels much more. 1500 OR OFFER 925-447-0558

2000 - ; 38 ft. Newmar Dutch Star w/Cummins Diesel \$92,000; 60K, new tires, new batteries, etc.! LOADED 209-847-8264

1995 - 3/4 Ton Pickup. 4x4, needs locker box. Ext. cab, short bed w/liner, newer rims, white w/gray interior, 135k. Smogged/regd til 11/06. \$4,500. 925-449-0865

2004 - Goodyear Marathon trailer tires, 215-75R/14, I have 3 in like new condition less than 300 miles on them. \$150 OBO. 925-447-4797

2001 - Dodge Dakota QUAD Cab SLT Black V8, AT, TP, Loaded, nice truck. 11,000.00 Ray 209-835-5338

1991 - Ford Bronco excellent condition, custom paint, tires, exhaust, lift, auto start, security system 510-552-9971

VACATION RENTALS

SOUTH LAKE TAHOE Condo available Xmas and New Years. 3 Bd/2Bth, sleeps 8, hot tub, Heavenly 1/2 mile w/shuttle service. 925-372-7282

Perfect location! Tahoe cabin for rent 2 blocks from Heavenly. Sleeps approx 8 adults. \$400/wk, \$200/wknd. Call Jan or Steve for details. 925-240-1615

Cozy mountain cabin. 4bedr, 2bath. Sleeps 10-12. 20 miles from Bear Valley Ski Resort. Plan ahead for snowy weather. 925-245-1114

Squaw Valley Skiing - - 2/19-26/06, 1 BR condo, partial kitchen, sleeps 4. 3 night minimum @ \$125/night or whole week for \$700. 925-449-6048

Pinecrest - Cabin available near Dodge Ridge skiing. 3 bdrm/2 bath, fireplace w/wood, microwave, pool table, level cleared access to covered parking, \$225/wknd 925-449-5513

SOUTH LAKE TAHOE - 3 Bedroom 2 Bath Chalet, nicely furnished, all amenities, close to ALL skiing, some holidays still open. RESERVE NOW! 209-599-4644

Puerto Vallarta-2 bdr oceanfront condo, all amenities, available 1/5/06 - 1/12/06. Playa Del Sol Costa Sur Resort \$500/wk. 209-545-1308

Tahoe Keys - 3 bedrm, 2 1/2 bath home, fenced yard, skiing nearby, great views, call for details, \$195 night, 2 night min. 925-376-2211

WANTED

Wanted: Floppy Eared Bunny - Christmas gift for child. Please call after 6:00 pm. If leaving a message, please mention only the ad not the Bunny! 925-449-4093

2 Used Bikes for 9 and 10 year old girls for Brighter Christmas. Will fix. 209-403-4942

Wanted - tractor and implements, prefer diesel, 30HP+ 925-803-7627

Wanted: Vintage magazines and/or catalogs from before 1960. Nothing newer please! 510-455-0939

Need room to rent in South Lake Tahoe for the winter, maybe longer. Daughter is working at Heavenly. Maybe house sitting arrangement? 925-922-1674

Looking for someone who will hang outdoor Christmas lights on my house, then take down after the holidays. Tracy area. Best estimate gets job. 209-834-1835

Two snowbirds need a place to stay for the winter (approx. 12/14-2/14). Looking house-sit (ideally furnished). Willing to pay rent. 925-371-8531

Former DHS student chosen as Rhodes Scholar

By Linda Lucchetti

NEWSLINE STAFF

Rahul Satija, a former Lab Department of Homeland Security (DHS) scholar, is one of 32 Americans chosen as Rhodes Scholars.

While a DHS intern for 10 weeks this summer, Satija worked with LLNL mentor Tom Slezak and the pathogen bioinformatics team on smallpox analysis. He conducted a complex analysis of genomes, looking at single-nucleotide polymorphisms (or mutations) and possible protein coding-sequence frame-shifts or structural changes caused by those mutations.

Slezak said that Satija's analysis was extremely thorough and helped provide additional evidence for one theory about the evolutionary ancestry of

the two versions of the Variola minor form of smallpox.

"Rahul is easily the brightest summer student I have had in the past 27 years at LLNL. Working with an absolute minimal amount of help from the team, he functioned as a peer researcher and performed a brilliant analysis," Slezak said. "We are thrilled that he has been recognized with a Rhodes Scholarship award and honored to have had the chance to get to know him. I hope to keep in touch with him as his career grows. He is somebody who will someday make a difference in human health."

Satija hails from Potomac, Md., and is a Duke University senior majoring in biology and music with a minor in math. As a Rhodes Scholar, he will enter the University of Oxford in England in October 2006.

Satija also won the Marshall Fellowship and the Goldwater Scholarship for his scientific work. He is a concertmaster for the Duke Symphony Orchestra and first violinist of a student string quartet. He also holds Duke's only music performance scholarship. In addition, he teaches violin to inner city youth in Durham, N.C. and plays with the Duke recreational tennis club.

The 2006 Rhodes Scholars were chosen from 903 applicants who were endorsed by 333 colleges and universities. Rhodes Scholarships, the oldest of the international study awards available to American students, were created in 1902 by the will of Cecil Rhodes, British philanthropist and colonial pioneer, and provide two or three years of study at Oxford.

FLU

Continued from page 1

"The best way to prevent the flu is to get the flu vaccine," according to Dr. James Seward, LLNL medical director. The flu shot contains three inactivated (killed) viruses — one A (H3N2) virus, one A (H1N1) virus, and one B virus. Two weeks after the vaccination, antibodies to the flu should develop.

The vaccination is 70 to 90 percent effective in people under 65. Side effects include soreness at the site of the shot, muscle aches and low-grade fever. Seward reminds employees that, in order not to spread the flu, they should not come to work when they are ill.

This year's flu shot does not, however, protect against avian influenza, a type of flu that is causing growing worldwide concern. Avian flu is an infection caused by a virus, influenza A-H5N1, which occurs naturally in birds. Although these viruses typically do not infect humans, several human infections have occurred in Cambodia, China, Indonesia, Thailand and Vietnam (there have been no confirmed cases in the United States).

If the virus is able to mutate or recombine with another virus via a method known as antigenic shift, a more serious global pandemic could occur. HSD is now developing strategies to prepare the Lab for a possible global outbreak of avian-type influenza. They include:

- Creating an LLNL Avian Flu Preparedness Working Group
- Monitoring national updates, travel advisories and vaccine development
- Reviewing requirements for necessary supplies
- Developing strategies to screen employees and visitors in the event of an epidemic
- Identifying LLNL policies that should be reviewed
- Readyng guidelines to keep employees safe and healthy while continuing Laboratory operations

HSD offers the following information for Lab employees concerned about avian flu:

What are the symptoms?

Symptoms include fever, cough, sore throat, muscle aches, eye infections, pneumonia and severe respiratory disease. In the countries where the disease has been reported, there has been a mortality rate of up to 50 percent.

How is it spread?

The virus is spread through contact with infected bird saliva, secretions and feces or surfaces contaminated with these secretions. The virus can survive outside of the bird for months. While most infections have occurred through contact with infected poultry, the possibility of human-to-human transmission may become a risk.

What precautions should I take?

There are no current recommended dietary restrictions but, as always, you should thoroughly cook poultry and eggs and clean the surfaces with which they come into contact. It is also advisable to obtain the current seasonal flu vaccination. Although this vaccine will not protect against avian flu, it will prevent confusion of symptoms should they develop, and possibly prevent antigenic shift — the combination of the two viruses into a highly virulent "super-virus." Finally, you should continue to maintain good

Symptom	Influenza	Common Cold
Fever	Usual, sudden onset, up to 101-104 degrees, lasts 3-4 days.	Rare
Headache*	Usual, and can be severe.	Rare
Aches and pains*	Usual, and can be severe.	Rare
Fatigue and weakness*	Usual, and can be severe and even debilitating. May last up to three weeks.	Sometimes, but mild
Nausea, vomiting and diarrhea	More common in children under five years of age.	Rare
Watering of the eyes	Rare	Usual
Runny, stuff nose	Rare	Usual
Sneezing	Rare	Usual
Sore throat	Usual	Usual
Chest discomfort	Usual, and can be severe.	Sometimes, but mild to moderate.
Complications	Severe respiratory distress can progress to respiratory failure.	Congestion or earache.
Fatality	Well recognized.	Not reported.
Prevention	Vaccine, frequent hand washing, covering your cough.	Frequent hand washing, covering your cough.

* IF YOU HAVE FEVER AND ONE OF THESE SYMPTOMS, CALL HSD BEFORE RETURNING TO WORK.

hygiene practices in the workplace, including frequent hand washing, disposing of tissues after one use, and covering your mouth when you cough or sneeze.

Can I travel to Asia?

There are currently no travel restrictions to these countries; however, travelers are advised to avoid animal contact, poultry farms and live food markets. Additionally, travelers should practice careful hygiene, wash their hands frequently, carry alcohol-based hand cleaners, carry a first-aid kit including a thermometer and avoid undercooked poultry products. If exposed, travelers are advised to monitor their health for symptoms for 10 days after contact and seek medical attention if symptoms develop during that period.

Where can I get more information?

Several national and international agencies have useful websites with up-to-date information on the status of avian influenza:

- U.S. Department of Health and Human Services (<http://pandemicflu.gov/>)
- World Health Organization (http://www.who.int/csr/disease/avian_influenza/en/)
- U.S. Centers for Disease Control and Prevention (<http://www.cdc.gov/flu/avian/> and http://www.cdc.gov/travel/other/avian_influenza_se_asia_2005.htm).
- U.S. Department of Energy (<http://www.eh.doe.gov/health/avian.html>)
- U.S. State Department (http://travel.state.gov/travel/tips/health/health_1185.html)

Don't let discomfort turn into injury

Are you experiencing ergonomic-related discomfort? If so, contact the Early Intervention Program (EIP) for help. To schedule an appointment, call ext. 4-4496 or 2-ERGO, the Lab's ergonomics hotline.



Go to the General Info section of the Ergonomics Web-site (www.llnl.gov/ergo) to learn about the Early Intervention Program.



THE BACK PAGE

Assessing Albert Einstein's theories as time goes by

By Bob Hirschfeld

NEWSLINE STAFF WRITER

Was Einstein right?

That was the question addressed by Clifford Will, physics professor at Washington University in St. Louis, in Tuesday's Director's Distinguished Lecturer Series (DDLs).

In a nutshell, Will's answer was — at least so far — “Yes.”

But before launching into his explanation, Will challenged his audience with a series of trivia questions.

He asked if anyone could identify the famous song with these lyrics:

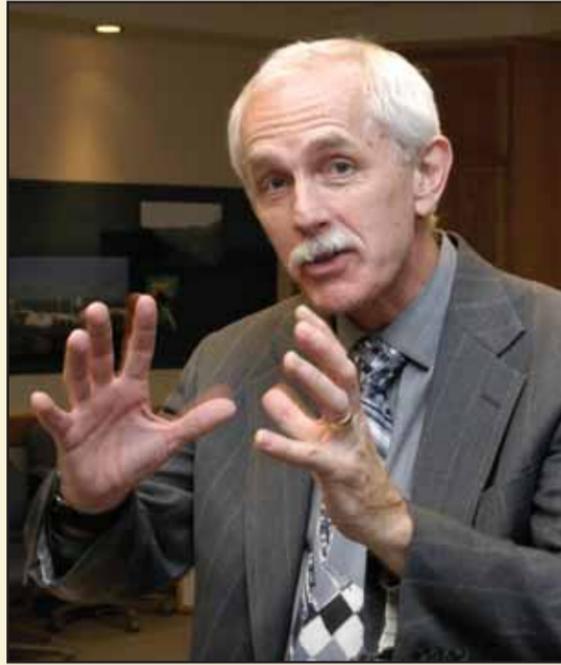
*This day and age we're living in
Gives cause for apprehension.
With speed and new invention
And things like fourth dimension.*

*Yet we get a trifle weary
With Mr. Einstein's theory.
So we must get down to earth at
times
Relax relieve the tension.*

Will also showed a viewgraph of the Arecibo Radio Observatory in Puerto Rico, and asked the audience to name the three movies that featured the giant dish. The answers appear at the end of this article.

The trivia questions served to illustrate Will's thesis about Einstein's fame for his tremendous achievement in crafting a precise and accurate formula that describes the theory of general relativity.

In fact, according to Will, while the theory was concise, it was also based on such complicated mathematics that the general public was unable to fully appreciate Einstein's accomplishment — hence



BOB HIRSCHFELD/NEWSLINE

Clifford Will

the song lyrics.

Furthermore, it took decades for scientists to develop instruments that could be used for verification, such as the huge Arecibo Observatory in Puerto Rico.

Will said astronomy experienced a revolution beginning in the 1960s, with important discoveries including quasars, X-ray binary pulsars and black hole candidates. Scientists began to develop high-precision measurement tools that were able to examine the universe, and compare their findings with Einstein's predictions from decades earlier.

For example, disturbances in the orbit of the planet Mercury can be accurately predicted based on aspects of Einstein's theory of general relativity.

His theories regarding the connections

between time, space and gravity have been born out repeatedly during observations of binary neutron stars.

Even the network of 24 GPS satellites orbiting Earth must accommodate the theory of general relativity, or their accuracy would fail almost immediately.

In his later years, Einstein devoted most of his attention to the development of a unified field theory, but he never succeeded in this quest.

And although he was a strong supporter of Israel, he demonstrated no desire to use his fame as a scientist to enter politics.

In 1952, Israel's founding prime minister, David Ben-Gurion, asked Einstein to become the state's second president, following the death of Chaim Weizmann.

“To everyone's relief,” said Will, “Einstein refused.”

Will was the concluding DDLs speaker in this year's series of talks devoted to the 2005 World Year of Physics.

Trivia answers:

The Einstein song lyrics include this refrain:

You must remember this

A kiss is just a kiss, a sigh is just a sigh.

The fundamental things apply

As time goes by.

(from the movie Casablanca)

The three films in which the Arecibo Radio Observatory was featured are: Contact, GoldenEye, and The Cable Guy. Will said someone told him about the latter movie, but he's never actually seen it, and therefore cannot guarantee the accuracy of that part of his answer.

Highlighting bioscience



JACQUELINE MCBRIDE/NEWSLINE

Elizabeth Vitalis of the Biosciences Directorate was among more than 20 presenters at this week's 2nd Annual Biosciences Symposium. The speakers covered subjects ranging from new ways to detect human and animal diseases to studies of the genomes of pathogens, frogs and primates. The two-day symposium also featured poster sessions a wide range of research topics.



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